APPLICATION NOTES

AES67 CONFIGURATION ON DSP+ & A+ MODELS

AES67 CONFIGURATION ON DSP+ & A+ MODELS

Powersoft brand new Quattro/Due canali DSP+ and Mezzo A+ models can be set up to receive audio over IP streams compliant to AES67 interoperability standard. Mezzo A+ models has also the possibility to transmit AES67 AoIP streams.

This application note describes how to properly configure the amplifier and patch it to a compatible AES67 stream using the software ArmoniaPlus.

AES67 specifications

AES67 is a technical standard for audio applications of networks that allows high-performance streaming Audio-over-IP interoperability between different networking systems.

All Powersoft amplifiers featuring a Dante card can be configured to work with AES67 audio streams according to Audinate's compatibility specification by enabling the *"AES67-mode"* via ArmoníaPlus or Dante controller.

The new Powersoft DSP+ models can receive AES67 streams natively when connecting the dedicated network port "AoIP" to your AES67 network.

Network port configuration for DSP+ models is S*plit Mode* and cannot be changed: the two ports have their own IP Address that can be configured in DHCP mode (default configuration) or in Static mode.

The first port *"Ethernet"* is used for remote control via ArmoníaPlus or third-party clients while the second port *"AoIP"* is for receiving AES67 compatible streams (*Figure 1*).

Figure 1: network ports on Canali Series

On the other side Mezzo A+ models can receive and transmit AES67 streams with the dedicated network ports. The two ports are both for remote control via ArmoníaPlus and *"AoIP"* and they are configured in S*witch Mode.* The two ports can be configured in DHCP mode (default configuration) or in Static mode.
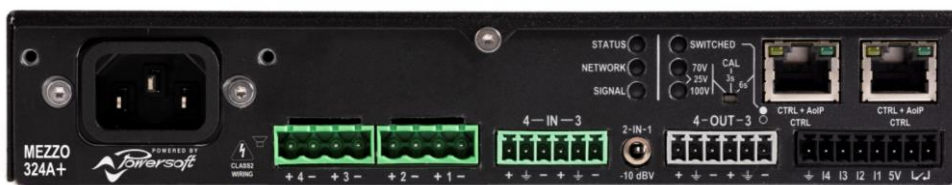

Figure 2: network ports on Mezzo Series

The following table (*Table 1*) describes the specification of AES67 streams supported by DSP+ and A+ models:

AES67	
Discovery	SAP/SDP
Network	Multicast
Packet Time	1 ms
Sample Rate	48 kHz
Encoding	L24
Channels	Up to 8 per stream

Table 1 – DSP+ & A+ AES67 specifications.

Application Example

1. DSP+ AES67 NETWORK EXAMPLE

The following example is showing how a network infrastructure should be created when using Powersoft DSP+ amplifiers with a third-party processor (*Figure 3*).
This example is also valid if using Mezzo A+ models, that can be integrated simultaneously with DSP+ models and Dante models.
The elements of the system are:

- Third-party processor
- Managed Gigabit Switch
- Powersoft DSP+ amplifiers
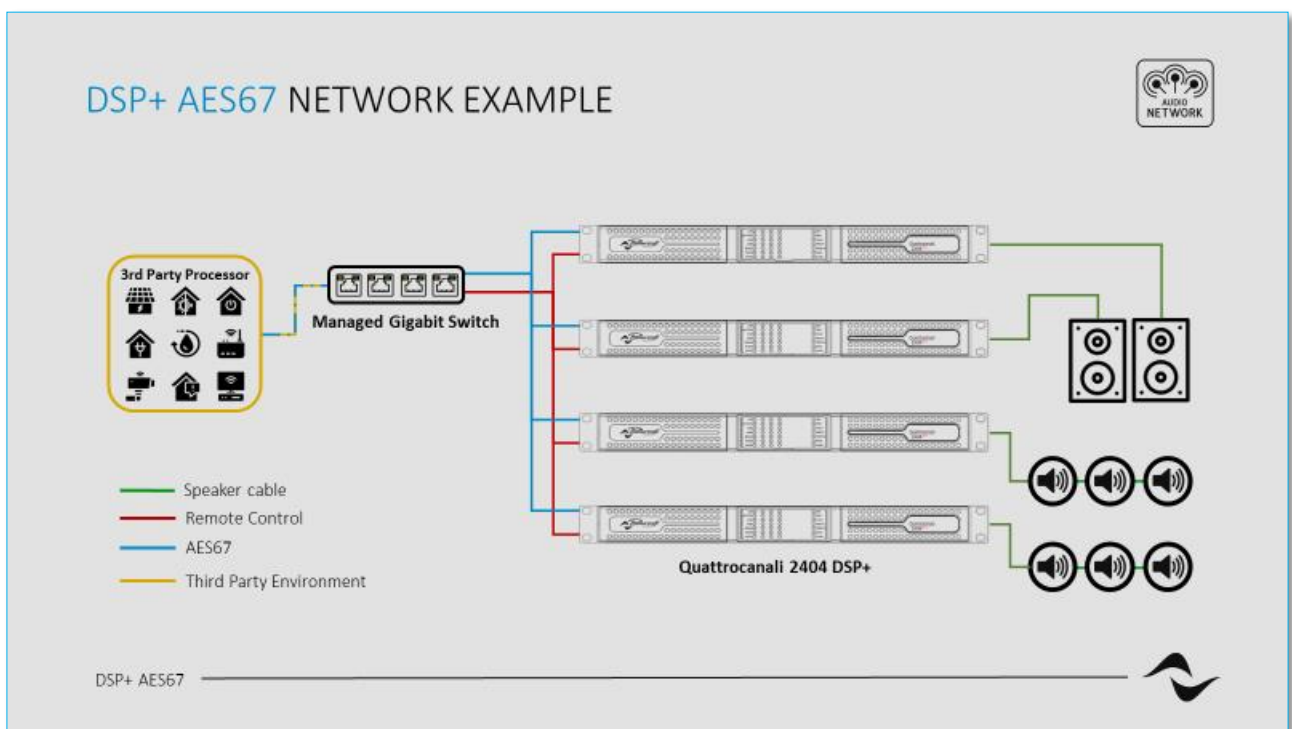- Passive loudspeakers

Figure 3: DSP+ AES67 Network example drawing

The same drawing can be created into ArmoníaPlus for a clearer overview and management of the system (*Figure 4*):
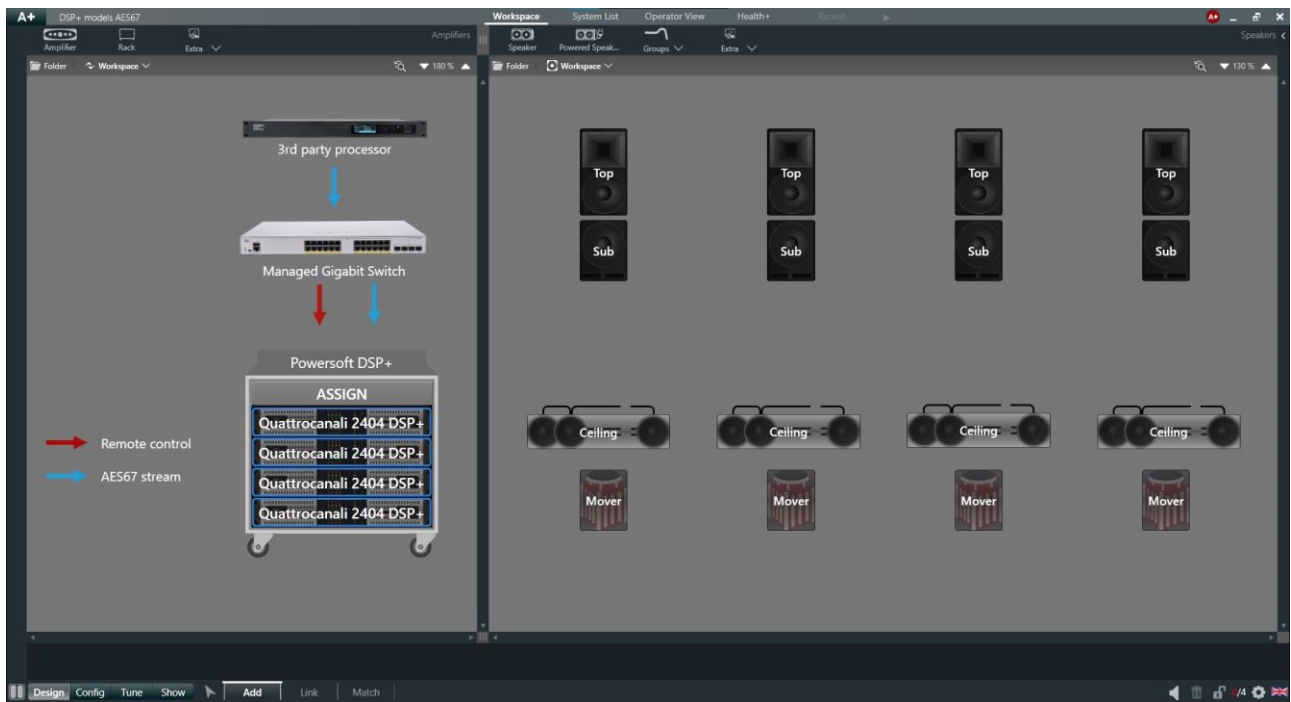

Figure 4: ArmoníaPlus Live sound project with DSP+ models

AES67 patching

Patching a DSP+ and A+ amplifiers to receive an AES67 stream is a very easy operation through ArmoníaPlus:

1. Connect your pc with ArmoníaPlus to both remote control and AES67 network.
2. Open the 'Communication Manager' and enable the AES67 button to let ArmoníaPlus being able to scan AES67 streams (*Figure 5*).
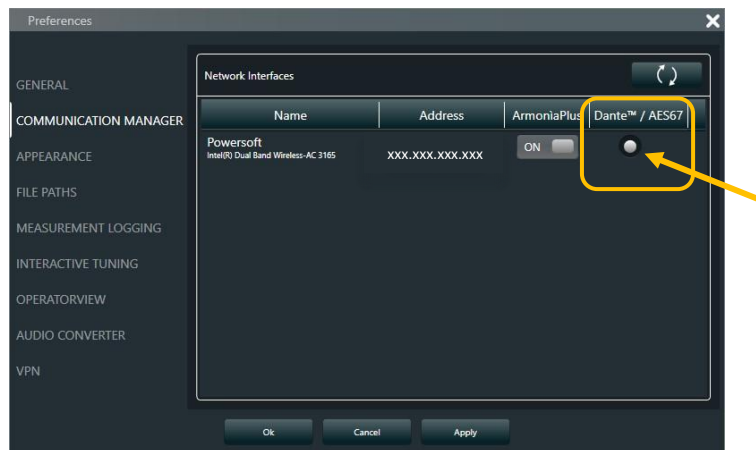

Figure 5: ArmoníaPlus Communication Manager

3. Click "Ok" to confirm and close the window.
4. Go to the tab "Config" and select the "Input" function.
5. Select the input of the amplifier that you want to patch. (Multiple input selection is available when using same amplifier series).
6. Click on the desired priority box and select "AES67" on the amplifier input column.
7. Choose the AES67 Rx channel of the amplifier that you want to be patched
8. Select the Tx stream in the "Network devices" column and the source channel (*Figure 6*).
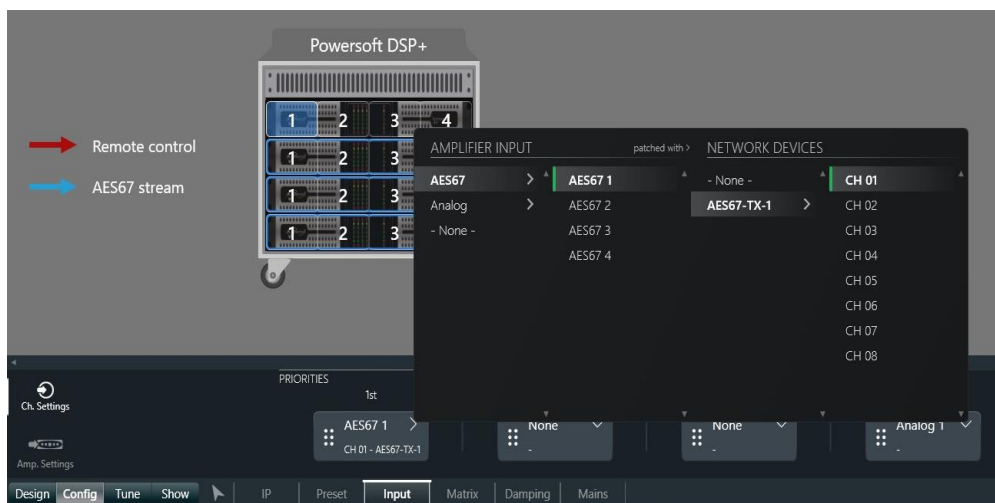

Figure 6: AES67 input patching window

It is important to note that previous operations can be done also if the Input device is a Dante device with AES67-mode enabled (also Mezzo AD models, that are able to Tx flows).
Dante devices with Audinate FW version from 4.2 on have this possibility.

Below it is shown how to enable AES67-mode in Dante Controller and how to create a multicast flow that can be patched with our AES67 amplifiers' inputs.

To enable AES67 streaming (*Figure 7*)
1. Open the Device View window by double-clicking on the device to be configured, in the starting screen of Dante Controller.
2. Select the AES67 Config tab.
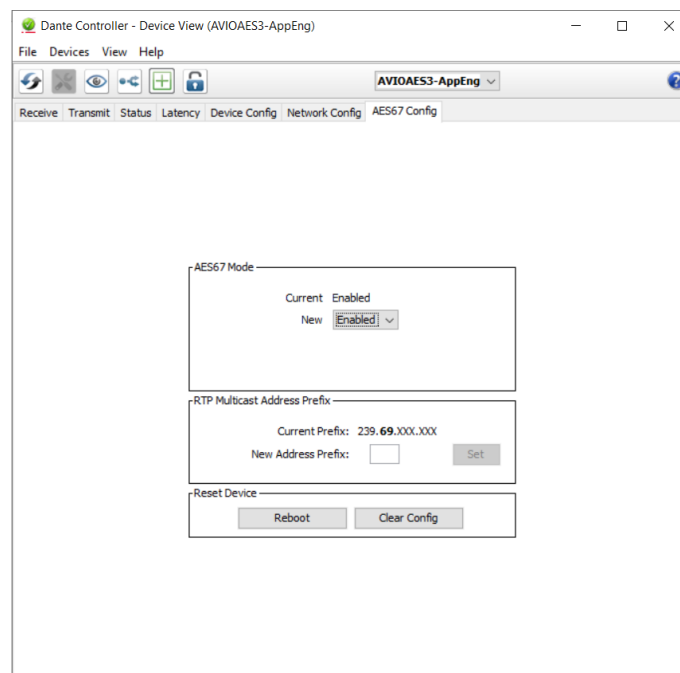3. Under 'AES67 Mode' select 'Enabled' from the drop-down list.

Figure 7: AES67-mode enabling in Dante Controller

It is important to note that this operation requires a device reboot. This can be done by simply clicking 'Reboot' under 'Reset Device'. However, in some instances, it has been verified that a manual reboot of the amplifier is necessary for modifications to take effect and is, therefore, recommended as best practice.

It is then necessary to create a Multicast Transmit flow to allow Dante devices to transmit AES67 flows over the network. These flows can be recognized in ArmoníaPlus in the Input patching window and can be used as Inputs for the Canali DSP+ and Mezzo A+ amplifiers.

In *Figure 8* it's shown how to create a Multicast Transmit AES67 flow:

1. Open the Device View window by double-clicking on the transmitting device to be configured.
2. Click on the 'Create a new multicast flow' button at the top bar.

3. In the 'Create Multicast Flow' window, tick the 'AES67' selector (*Figure 7*).
4. Select the channels to be included in the multicast flow.
5. Click 'Create'

Figure 8: AES7 Multicast flow creation

N.B. With all these configurations done Dante and AES67 amplifiers can coexist in the same system and AES67 Inputs for AES67 Powersoft Amplifiers can be Mezzo AD AES67 enabled Tx channels.

AES67 settings

AES67 chipset in DSP+ and A+ amplifier can be configured accessing to the "*AES67 settings*" tab available in the option of the amplifier (*Figure 9*).

Parameters available are:

- Device Name
- IP address
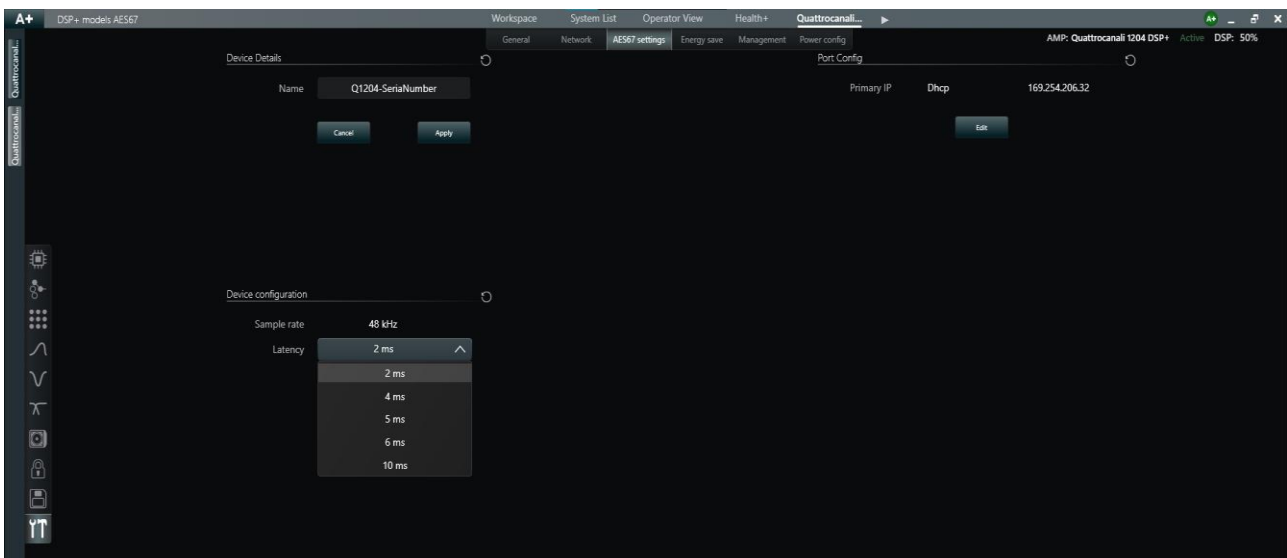- Sample rate (fixed at 48kHz)
- Latency

Figure 9: AES67 settings window

The latency parameter can be set according to the network bandwidth available and the desired performances.
A higher latency value is suggested to have more stability and avoid audio dropouts or clock issues.

Audio-over-IP support and Dynamic Music Distribution compatibility

The following table (*Table 2*) lists the compatibilities of Duecanali and Quattrocanali series amplifiers to the Dante protocol and AES67 streams and the support to Dynamic Music Distribution systems:

		Dante Rx	Dante Tx	AES67 Rx	AES67 Tx	Dynamic Music Distribution compatible
Duecanali Series	6404 DSP					✓
	4804 DSP					✓
	1604 DSP					✓
	804 DSP					✓
	6404 DSP+D	✓		✓		✓
	4804 DSP+D	✓		✓		✓
	1604 DSP+D	✓		✓		✓
	804 DSP+D	✓		✓		✓
	6404 DSP+			✓		
	4804 DSP+			✓		
	1604 DSP+			✓		
	804 DSP+			✓		
Quattrocanali Series	8804 DSP					✓
	4804 DSP					✓
	2404 DSP					✓
	1204 DSP					✓
	8804 DSP+D	✓		✓		✓
	4804 DSP+D	✓		✓		✓
	2404 DSP+D	✓		✓		✓
	1204 DSP+D	✓		✓		✓
	8804 DSP+			✓		
	4804 DSP+			✓		
	2404 DSP+			✓		
	1204 DSP+			✓		
Mezzo Series	322 A					✓
	324 A					✓
	602 A					✓
	604 A					✓

322 AD	✓	✓	✓	✓	✓
324 AD	✓	✓	✓	✓	✓
602 AD	✓	✓	✓	✓	✓
604 AD	✓	✓	✓	✓	✓
322 A+			✓	✓	✓
324 A+			✓	✓	✓
602 A+			✓	✓	✓
604 A+			✓	✓	✓

Table 2 – List of AoIP protocols and compatibility with Dynamic Music Distribution.

For AES67 configuration on DSP+D and AD models using Audinate's chipset you can refer to the Application Note Configuring AES67 on Dante amplfiers.

Notes:

DSP+ & A+ models and AES67 patching features, in a NON DMD System, are available using the "Live sound" project skin in ArmoníaPlus 2.4.x or above.
AES67 patching is not available on virtual/offline devices.

Powersoft S.p.A
Via E. Conti, 5- Scandicci (Fi) 50018- Italy
TELEPHONE: +39 055 7350230

Commercial Enquires: https://www.powersoft.com/en/about/contacts/
Solutions & Technical Support: https://www.powersoft.com/en/about/contacts/
Service & Maintenance: https://www.powersoft.com/en/product-repair/

www.powersoft.com